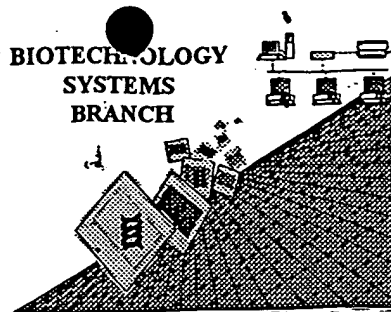


## **RAW SEQUENCE LISTING** **ERROR REPORT**

BIOTECHNOLOGY  
SYSTEMS  
BRANCH



0590  
FET1  
6107

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/930,440A  
Source: 01PE  
Date Processed by STIC: 12/11/01

**THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.**

**PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:**

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

**FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.**

**FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216.**

**PATENTIN 2.1 e-mail help: [patin21help@uspto.gov](mailto:patin21help@uspto.gov) or phone 703-306-4119 (R. Wax)**

**PATENTIN 3.0 e-mail help: [patin3help@uspto.gov](mailto:patin3help@uspto.gov) or phone 703-306-4119 (R. Wax)**

**TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE CHECKER VERSION 3.0 PROGRAM, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW:**

### **Checker Version 3.0**

The Checker Version 3.0 application is a state-of-the-art Windows based software program employing a logical and intuitive user-interface to check whether a sequence listing is in compliance with format and content rules. Checker Version 3.0 works for sequence listings generated for the original version of 37 CFR §§1.821 - 1.825 effective October 1, 1990 (old rules) and the revised version (new rules) effective July 1, 1998 as well as World Intellectual Property Organization (WIPO) Standard ST.25.

Checker Version 3.0 replaces the previous DOS-based version of Checker, and is Y2K-compliant. Checker allows public users to check sequence listings in Computer Readable form (CRF) before submitting them to the United States Patent and Trademark Office (USPTO). Use of Checker prior to filing the sequence listing is expected to result in fewer errored sequence listings, thus saving time and money.

**Checker Version 3.0 can be down loaded from the USPTO website at the following address:**

**<http://www.uspto.gov/web/offices/pac/checker>**

OIIPE

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/930,440A

DATE: 12/11/2001

TIME: 10:54:30

Does Not Comply

Corrected Diskette Needed

Input Set : A:\PF509p2--SubSeqList-12042001.txt

Output Set: N:\CRF3\12112001\I930440A.raw

Error on pp 3 &amp; 4

3 <110> APPLICANT: Betenbaugh et al.  
 5 <120> TITLE OF INVENTION: Engineering Intracellular Sialylation Pathways  
 7 <130> FILE REFERENCE: PF509P2  
 9 <140> CURRENT APPLICATION NUMBER: 09/930,440A  
 C--> 10 <141> CURRENT FILING DATE: 2001-08-19  
 12 <150> PRIOR APPLICATION NUMBER: 60/227,579  
 13 <151> PRIOR FILING DATE: 2000-08-25  
 15 <150> PRIOR APPLICATION NUMBER: 09/516,793  
 16 <151> PRIOR FILING DATE: 2000-03-01  
 18 <150> PRIOR APPLICATION NUMBER: 60/169,624  
 19 <151> PRIOR FILING DATE: 1999-12-08  
 21 <150> PRIOR APPLICATION NUMBER: 60/122,582  
 22 <151> PRIOR FILING DATE: 1999-03-02  
 24 <160> NUMBER OF SEQ ID NOS: 8  
 26 <170> SOFTWARE: PatentIn Ver. 2.1  
 28 <210> SEQ ID NO: 1  
 29 <211> LENGTH: 1429  
 30 <212> TYPE: DNA  
 31 <213> ORGANISM: Homo sapiens  
 33 <220> FEATURE:  
 34 <221> NAME/KEY: CDS  
 35 <222> LOCATION: (1)..(693)  
 37 <400> SEQUENCE: 1  
 38 atg gcc ttc cca aag aag aaa ctt cag ggt ctt gtg gct gca acc atc 48  
 39 Met Ala Phe Pro Lys Lys Lys Leu Gln Gly Leu Val Ala Ala Thr Ile  
 40 1 5 10 15  
 42 acg cca atg act gag aat gga gaa atc aac ttt tca gta att ggt cag 96  
 43 Thr Pro Met Thr Glu Asn Gly Glu Ile Asn Phe Ser Val Ile Gly Gln  
 44 20 25 30  
 46 tat gtg gat tat ctt gtg aaa gaa cag gga gtg aag aac att ttt gtg 144  
 47 Tyr Val Asp Tyr Leu Val Lys Glu Gln Gly Val Lys Asn Ile Phe Val  
 48 35 40 45  
 50 aat ggc aca aca gga gaa ggc ctg tcc ctg agc gtc tca gag cgt cgc 192  
 51 Asn Gly Thr Thr Gly Glu Gly Leu Ser Leu Ser Val Ser Glu Arg Arg  
 52 50 55 60  
 54 cag gtt gca gag gag tgg gtg aca aaa ggg aag gac aag ctg gat cag 240  
 55 Gln Val Ala Glu Glu Trp Val Thr Lys Gly Lys Asp Lys Leu Asp Gln  
 56 65 70 75 80  
 58 gtg ata att cac gta gga gca ctg agc ttg aag gag tca cag gaa ctg 288  
 59 Val Ile Ile His Val Gly Ala Leu Ser Leu Lys Glu Ser Gln Glu Leu  
 60 85 90 95  
 62 gcc caa cat gca gca gaa ata gga gct gat ggc atc gct gtc att gca 336  
 63 Ala Gln His Ala Ala Glu Ile Gly Ala Asp Gly Ile Ala Val Ile Ala  
 64 100 105 110  
 66 cag ttc ttc ctg aag cca tgg acc aaa gat atc ctg att aat ttc cta 384  
 67 Pro Phe Phe Leu Lys Pro Trp Thr Lys Asp Ile Leu Ile Asn Phe Leu  
 68 115 120 125

## RAW SEQUENCE LISTING

DATE: 12/11/2001

PATENT APPLICATION: US/09/930,440A

TIME: 10:54:30

Input Set : A:\PF509p2--SubSeqList-12042001.txt

Output Set: N:\CRF3\12112001\I930440A.raw

```

70 aag gaa gtg gct gct gcc gcc cct gcc ctg cca ttt tat tac tat cac 432
71 lys Glu Val Ala Ala Ala Pro Ala Leu Pro Phe Tyr Tyr Tyr His
72 130 135 140
74 att cct gcc ttg aca ggg gta aag att cgt gct gag gag ttg ttg gat 480
75 ile Pro Ala Leu Thr Gly Val Lys Ile Arg Ala Glu Glu Leu Leu Asp
76 145 150 155 160
78 ggg att ctg gat aag atc ccc acc ttc caa ggg ctg aaa ttc agt gat 528
79 Gly Ile Leu Asp Lys Ile Pro Thr Phe Gln Gly Leu Lys Phe Ser Asp
80 165 170 175
82 aca gat ctc tta gac ttc ggg caa tgt gtt gat cag aat cgc cag caa 576
83 Thr Asp Leu Leu Asp Phe Gly Gln Cys Val Asp Gln Asn Arg Gln Gln
84 180 185 190
86 cag ttt gct ttc ctt ttt ggg gtg gat gag caa ctg ttg agt gct ctg 624
87 Gln Phe Ala Phe Leu Phe Gly Val Asp Glu Gln Leu Leu Ser Ala Leu
88 195 200 205
90 gtg atg gga gca act gga gca gtg ggc agt ttt gta tcc aga gat tta 672
91 Val Met Gly Ala Thr Gly Ala Val Gly Ser Phe Val Ser Arg Asp Leu
92 210 215 220
94 tca act ttg ttg tca aac tag gttttggagt gtcacagacc aaagccatca 723
95 Ser Thr Leu Leu Ser Asn
96 225 230
98 tgactctggt ctctgggatt ccaatgggcc caccocggct tccactgcag aaagcctcca 783
100 gggagtttac tgatagtgt gaagctaaac tgaagagcct ggatttcctt tctttcactg 843
102 atttaaagga tggaaacttg gaagctggta gctagtgcct ctctatcaaa tcagggtttg 903
104 caccctgaga cataatctac ctttaatatg gcattttttt ctcagggaat tttagatgaa 963
106 cttgaataaa ctctcctagc aaatgaaatc tcacaataag cattgaggta cctttttgtga 1023
108 gccttaaaaa gtcttatttt gtgaaggggc aaaaactcta ggagtcacaa ctctcagtca 1083
110 ttcatttcac agattttttt gtggagaaat ttctgtttat atggatgaaa tggaaatcaag 1143
112 aggaaaattg taattgatta attccatctg tcttttaggag ctctcattat ctcggtctct 1203
114 ggttcctaatt cctatttttaa agttgtctaa ttttaaacca ctataatatg tcttcatttt 1263
116 aataaatatt catttggaat ctaggaaaac tctgagctac tgcatttagg caggcacttt 1323
118 aataccaaac tgtaacatgt ctcaactgta tacaactcaa aatacaccag ctcaatttggc 1383
120 tgctcagtct aactctagaa tggatgcttt tgaatttcatt tcgatg 1429
123 <210> SEQ ID NO: 2
124 <211> LENGTH: 230
125 <212> TYPE: PRT
126 <213> ORGANISM: Homo sapiens
128 <400> SEQUENCE: 2
129 Met Ala Phe Pro Lys Lys Lys Leu Gln Gly Leu Val Ala Ala Thr Ile
130 1 5 10 15
131 Thr Pro Met Thr Glu Asn Gly Glu Ile Asn Phe Ser Val Ile Gly Gln
132 20 25 30
133 Tyr Val Asp Tyr Leu Val Lys Glu Gln Gly Val Lys Asn Ile Phe Val
134 35 40 45
135 Asn Gly Thr Thr Gly Glu Gly Leu Ser Leu Ser Val Ser Glu Arg Arg
136 50 55 60
137 Gln Val Ala Glu Glu Trp Val Thr Lys Gly Lys Asp Lys Leu Asp Gln
138 65 70 75 80
139 Val Ile Ile His Val Gly Ala Leu Ser Leu Lys Glu Ser Gln Glu Leu

```

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/930,440A

DATE: 12/11/2001

TIME: 10:54:30

Input Set : A:\PF509p2--SubSeqList-12042001.txt

Output Set: N:\CRF3\12112001\I930440A.raw

140 85 90 95  
141 Ala Gln His Ala Ala Glu Ile Gly Ala Asp Gly Ile Ala Val Ile Ala  
142 100 105 110  
143 Pro Phe Phe Leu Lys Pro Trp Thr Lys Asp Ile Leu Ile Asn Phe Leu  
144 115 120 125  
145 Lys Glu Val Ala Ala Ala Ala Pro Ala Leu Pro Phe Tyr Tyr Tyr His  
146 130 135 140  
147 Ile Pro Ala Leu Thr Gly Val Lys Ile Arg Ala Glu Glu Leu Leu Asp  
148 145 150 155 160  
149 Gly Ile Leu Asp Lys Ile Pro Thr Phe Gln Gly Leu Lys Phe Ser Asp  
150 165 170 175  
151 Thr Asp Leu Leu Asp Phe Gly Gln Cys Val Asp Gln Asn Arg Gln Gln  
152 180 185 190  
153 Gln Phe Ala Phe Leu Phe Gly Val Asp Glu Gln Leu Leu Ser Ala Leu  
154 195 200 205  
155 Val Met Gly Ala Thr Gly Ala Val Gly Ser Phe Val Ser Arg Asp Leu  
156 210 215 220  
157 Ser Thr Leu Leu Ser Asn  
158 225 230  
162 <210> SEQ ID NO: 3  
163 <211> LENGTH: 1305  
164 <212> TYPE: DNA  
165 <213> ORGANISM: Homo sapiens  
167 <220> FEATURE:  
168 <221> NAME/KEY: CDS  
169 <222> LOCATION: (1)..(1305)  
171 <220> FEATURE:  
172 <221> NAME/KEY: Site  
173 <222> LOCATION: (397)..(399)  
174 <223> OTHER INFORMATION: Xaa equals His or Tyr  
176 <220> FEATURE:  
177 <221> NAME/KEY: Site  
178 <222> LOCATION: (406)..(408)  
179 <223> OTHER INFORMATION: Xaa equals Gly or Val  
181 <220> FEATURE:  
182 <221> NAME/KEY: Site  
183 <222> LOCATION: (439)..(441)  
184 <223> OTHER INFORMATION: Xaa equals Pro or Ser  
186 <220> FEATURE:  
187 <221> NAME/KEY: Site  
188 <222> LOCATION: (505)..(507)  
189 <223> OTHER INFORMATION: Xaa equals Gly or Val  
191 <400> SEQUENCE: 3  
192 atg gac tcg gtg gag aag ggg gcc gcc acc tcc gtc tcc aac ccg cgg 48  
193 Met Asp Ser Val Glu Lys Gly Ala Ala Thr Ser Val Ser Asn Pro Arg  
194 1 5 10 15  
196 ggg cga ccg tcc cgg ggc cgg ccg ccg aag ctg cag cgc aac tct cgc 96  
197 Gly Arg Pro Ser Arg Gly Arg Pro Pro Lys Leu Gln Arg Asn Ser Arg  
198 20 25 30

X22 is not found  
at locations indicated

## RAW SEQUENCE LISTING

DATE: 12/11/2001

PATENT APPLICATION: US/09/930,440A

TIME: 10:54:30

Input Set : A:\PF509p2--SubSeqList-12042001.txt

Output Set: N:\CRF3\12112001\I930440A.raw

200 ggc ggc cag ggc cga ggt gtg gag aag ccc ccg cac ctg gca gcc cta 144  
 201 Gly Gly Gln Gly Arg Gly Val Glu Lys Pro Pro His Leu Ala Ala Leu  
 202 35 40 45  
 204 att ctg gcc cgg gga ggc agc aaa ggc atc ccc ctg aag aac att aag 192  
 205 Ile Leu Ala Arg Gly Gly Ser Lys Gly Ile Pro Leu Lys Asn Ile Lys  
 206 50 55 60  
 208 cac ctg gcg ggg gtc ccg ctc att ggc tgg gtc ctg cgt gcg gcc ctg 240  
 209 His Leu Ala Gly Val Pro Leu Ile Gly Trp Val Leu Arg Ala Ala Leu  
 210 65 70 75 80  
 212 gat tca ggg gcc ttc cag agt gta tgg gtt tgc aca gac cat gat gaa 288  
 213 Asp Ser Gly Ala Phe Gln Ser Val Trp Val Ser Thr Asp His Asp Glu  
 214 85 90 95  
 216 att gag aat gtg gcc aaa caa ttt ggt gca caa gtt cat cga aga agt 336  
 217 Ile Glu Asn Val Ala Lys Gln Phe Gly Ala Gln Val His Arg Arg Ser  
 218 100 105 110  
 220 tct gaa gtt tca aaa gac agc tct acc tca cta gat gcc atc ata gaa 384  
 221 Ser Glu Val Ser Lys Asp Ser Ser Thr Ser Leu Asp Ala Ile Ile Glu  
 222 115 120 125  
 224 ttt ctt aat tat tat aat gag ggt gac att gta gga aat att caa gct 432  
 W--> 225 Phe Leu Asn Tyr Xaa Asn Glu Xaa Asp Ile Val Gly Asn Ile Gln Ala  
 226 130 135 140  
 228 act tct yca tgt tta cat cct act gat ctt caa aaa gtt gca gaa atg 480  
 W--> 229 Thr Ser Xaa Cys Leu His Pro Thr Asp Leu Gln Lys Val Ala Glu Met  
 230 145 150 155 160  
 232 att cga gaa gaa gga tat gat tct ggt ttc tct gtt gtg aga cgc cat 528  
 W--> 233 Ile Arg Glu Glu Gly Tyr Asp Ser Xaa Phe Ser Val Val Arg Arg His  
 234 165 170 175  
 236 cag ttt cga tgg agt gaa att cag aaa gga gtt cgt gaa gtg acc gaa 576  
 237 Gln Phe Arg Trp Ser Glu Ile Gln Lys Gly Val Arg Glu Val Thr Glu  
 238 180 185 190  
 240 cct ctg aat tta aat cca gct aaa cgg cct cgt cga caa gac tgg gat 624  
 241 Pro Leu Asn Leu Asn Pro Ala Lys Arg Pro Arg Arg Gln Asp Trp Asp  
 242 195 200 205  
 244 gga gaa tta tat gaa aat ggc tca ttt tat ttt gct aaa aga cat ttg 672  
 245 Gly Glu Leu Tyr Glu Asn Gly Ser Phe Tyr Phe Ala Lys Arg His Leu  
 246 210 215 220  
 248 ata gag atg ggt tac ttg cag ggt gga aaa tgg cat act acg aaa tgc 720  
 249 Ile Glu Met Gly Tyr Leu Gln Gly Gly Lys Trp His Thr Thr Lys Cys  
 250 225 230 235 240  
 252 gag ctg gaa cat agt gtg gat ata gat gtg gat att gat tgg cct att 768  
 253 Glu Leu Glu His Ser Val Asp Ile Asp Val Asp Ile Asp Trp Pro Ile  
 254 245 250 255  
 256 gca gag caa aga gta tta aga tat ggc tat ttt ggc aaa gag aag ctt 816  
 257 Ala Glu Gln Arg Val Leu Arg Tyr Gly Tyr Phe Gly Lys Glu Lys Leu  
 258 260 265 270  
 260 aag gaa ata aaa ctt ttg gtt tgc aat att gat gga tgt ctc acc aat 864  
 261 Lys Glu Ile Lys Leu Leu Val Cys Asn Ile Asp Gly Cys Leu Thr Asn  
 262 275 280 285  
 264 ggc cac att tat gta tca gga gac caa aaa gaa ata ata tct tat gat 912

## RAW SEQUENCE LISTING

DATE: 12/11/2001

PATENT APPLICATION: US/09/930,440A

TIME: 10:54:30

Input Set : A:\PF509p2--SubSeqList-12042001.txt

Output Set: N:\CRF3\12112001\I930440A.raw

265 Gly His Ile Tyr Val Ser Gly Asp Gln Lys Glu Ile Ile Ser Tyr Asp  
 266 290 295 300  
 268 gta aaa gat gct att ggg ata agt tta tta aag aaa agt ggt att gag 960  
 269 Val Lys Asp Ala Ile Gly Ile Ser Leu Leu Lys Lys Ser Gly Ile Glu  
 270 305 310 315 320  
 272 gtg agg cta atc tca gaa agg gcc tgt tca aag cag acg ctg tct tct 1008  
 273 Val Arg Leu Ile Ser Glu Arg Ala Cys Ser Lys Gln Thr Leu Ser Ser  
 274 325 330 335  
 276 tta aaa ctg gat tgc aaa atg gaa gtc agt gta tca gac aag cta gca 1056  
 277 Leu Lys Leu Asp Cys Lys Met Glu Val Ser Val Ser Asp Lys Leu Ala  
 278 340 345 350  
 280 gtt gta gat gaa tgg aga aaa gaa atg ggc ctg tgc tgg aaa gaa gtg 1104  
 281 Val Val Asp Glu Trp Arg Lys Glu Met Gly Leu Cys Trp Lys Glu Val  
 282 355 360 365  
 284 gca tat ctt gga aat gaa gtg tct gat gaa gag tgc ttg aag aga gtg 1152  
 285 Ala Tyr Leu Gly Asn Glu Val Ser Asp Glu Glu Cys Leu Lys Arg Val  
 286 370 375 380  
 288 ggc cta agt ggc gct cct gct gat gcc tgt tcc tac gcc cag aag gct 1200  
 289 Gly Leu Ser Gly Ala Pro Ala Asp Ala Cys Ser Tyr Ala Gln Lys Ala  
 290 385 390 395 400  
 292 gtt gga tac att tgc aaa tgt aat ggt ggc cgt ggt gcc atc cga gaa 1248  
 293 Val Gly Tyr Ile Cys Lys Cys Asn Gly Gly Arg Gly Ala Ile Arg Glu  
 294 405 410 415  
 296 ttt gca gag cac att tgc cta cta atg gaa aaa gtt aat aat tca tgc 1296  
 297 Phe Ala Glu His Ile Cys Leu Leu Met Glu Lys Val Asn Asn Ser Cys  
 298 420 425 430  
 300 caa aaa tag 1305  
 301 Gln Lys  
 304 <210> SEQ ID NO: 4  
 305 <211> LENGTH: 434  
 306 <212> TYPE: PRT  
 307 <213> ORGANISM: Homo sapiens  
 309 <220> FEATURE:  
 310 <221> NAME/KEY: Site  
 311 <222> LOCATION: (133)  
 312 <223> OTHER INFORMATION: Xaa equals His or Tyr  
 314 <220> FEATURE:  
 315 <221> NAME/KEY: Site  
 316 <222> LOCATION: (136)  
 317 <223> OTHER INFORMATION: Xaa equals Gly or Val  
 319 <220> FEATURE:  
 320 <221> NAME/KEY: Site  
 321 <222> LOCATION: (147)  
 322 <223> OTHER INFORMATION: Xaa equals Pro or Ser  
 324 <220> FEATURE:  
 325 <221> NAME/KEY: Site  
 326 <222> LOCATION: (169)  
 327 <223> OTHER INFORMATION: Xaa equals Gly or Val  
 329 <400> SEQUENCE: 4

## VERIFICATION SUMMARY

PATENT APPLICATION: US/09/930,440A

DATE: 12/11/2001

TIME: 10:54:31

Input Set : A:\PF509p2--SubSeqList-12042001.txt

Output Set: N:\CRF3\12112001\I930440A.raw

L:10 M:271 C: Current Filing Date differs, Replaced Current Filing Date  
L:225 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3  
L:229 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3  
L:233 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3  
L:346 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4  
L:348 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4  
L:350 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4